

# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***Night Operations***

**Depth Perception  
Distance** →

**Height and**

→  
**Visual Acuity**

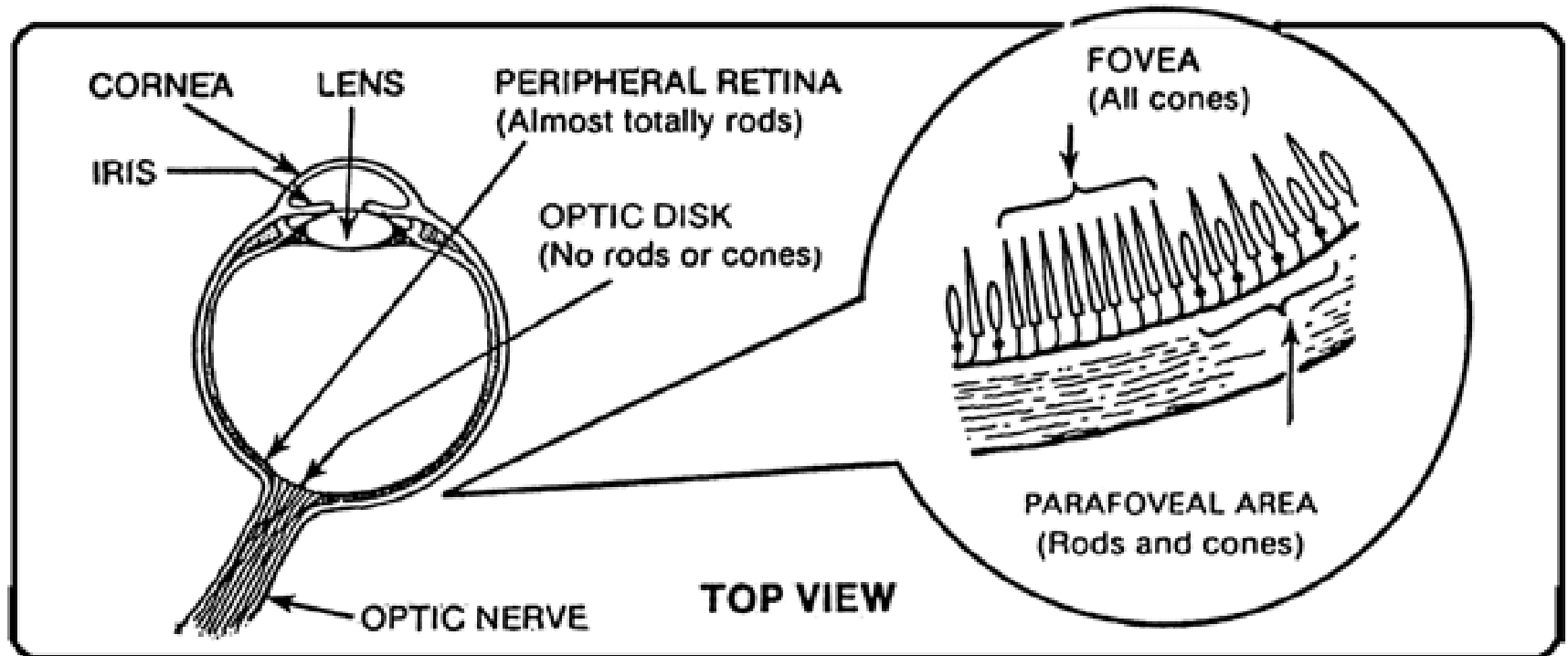
**Terrain Features &  
Obstacles**

→  
**Night Vision Techniques**

**Effective Night  
Operations**

# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *Anatomy of the Eye*



# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *Types of Vision*

**PHOTOPIC**



**DAYLIGHT HOURS**

**MESOPIC**



**DAWN, DUSK, MID-LIGHT**

**SCOTOPIC**



**DAYLIGHT HOURS**

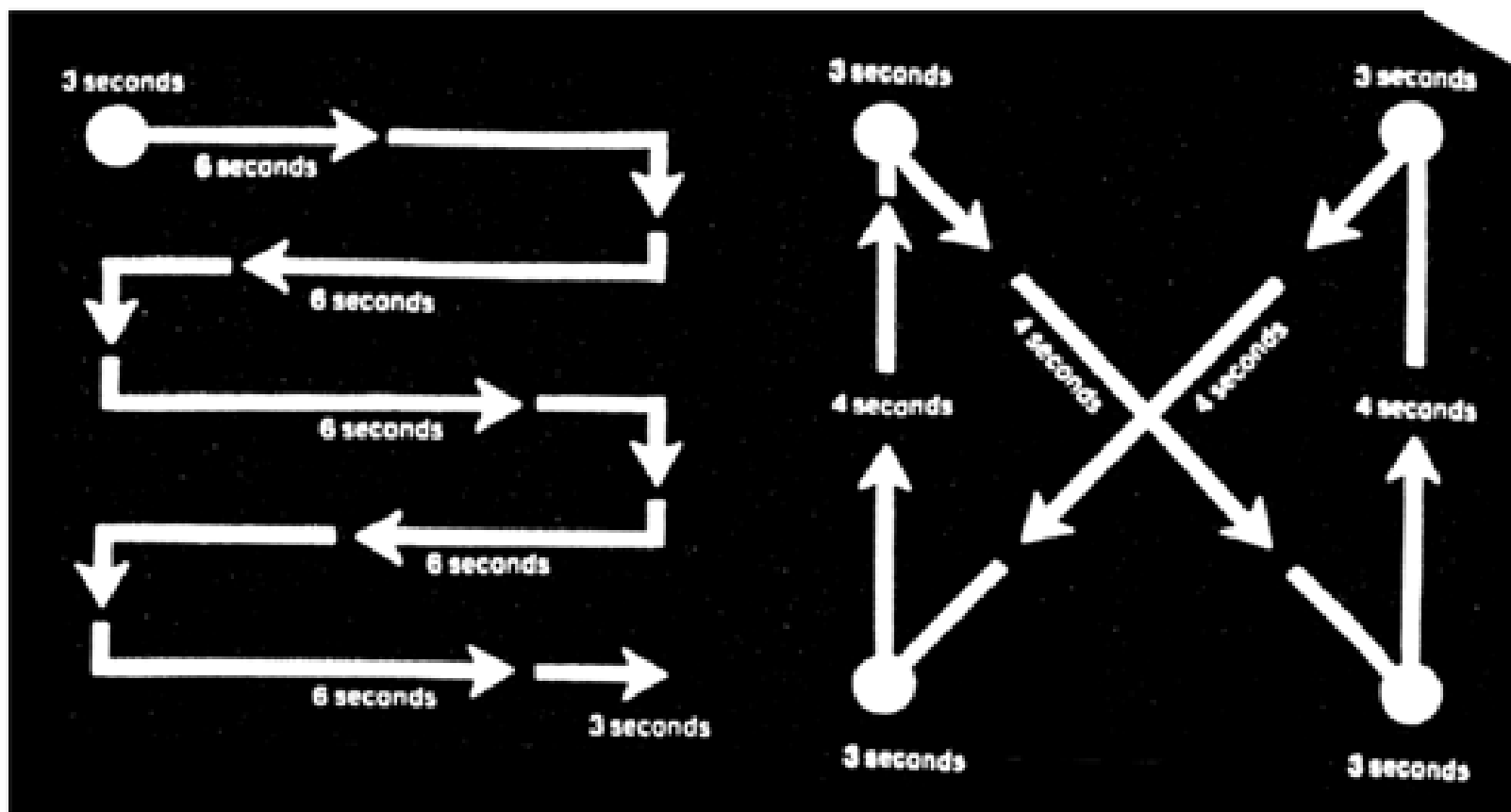
# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***Self-Imposed Stresses***

- **Smoking**
- **Alcohol**
- **Fatigue**
- **Nutrition**
- **Physical Condition**
- **Sleep**

# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *Night Vision Scanning Techniques*



# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***Depth Perception***

**The quality of seeing objects as  
three-dimensional solids in space.**

# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *Distance Estimation/Depth Perception*



# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***Sources of Ambient Light***

- **The Moon**
- **Background Lighting**
- **Artificial Lights**
- **Solar Lights**
- **Lasers**



# NIGHT VISION GOGGLE DRIVING OPERATIONS

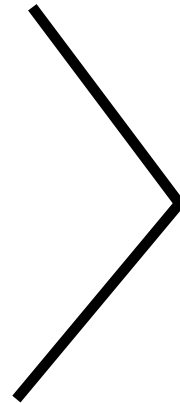
## *What are Night Vision Goggles*

*Night Vision Goggles* are devices that make an object more visible during periods of low light levels. Their performance is directly related to the amount of light available, such as starlight and moonlight.

# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***Advantages***

- **Better view of the surrounding area and object identification at night**
- **NVGs make it possible**
  - to Read**
  - ✦ Patrol**
  - ✦ Provide medical aid**
  - ✦ Drive**
  - ✦ Walk**
  - ✦ Observe the enemy**



# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***Disadvantages***

- ◎ **Performance is reduced in rain, haze, fog, snow or smoke.**
- ◎ **Visual acuity is reduced.**
- ◎ **Limited field of view.**
- ◎ **Reduced depth perception.**
- ◎ **Overconfidence.**
- ◎ **Focal range.**

# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***Infrared Illuminator***

**The IR (*INFRARED*) *ILLUMINATOR*  
makes the NVG an active system  
capable of being detected by  
*THE THREAT.***

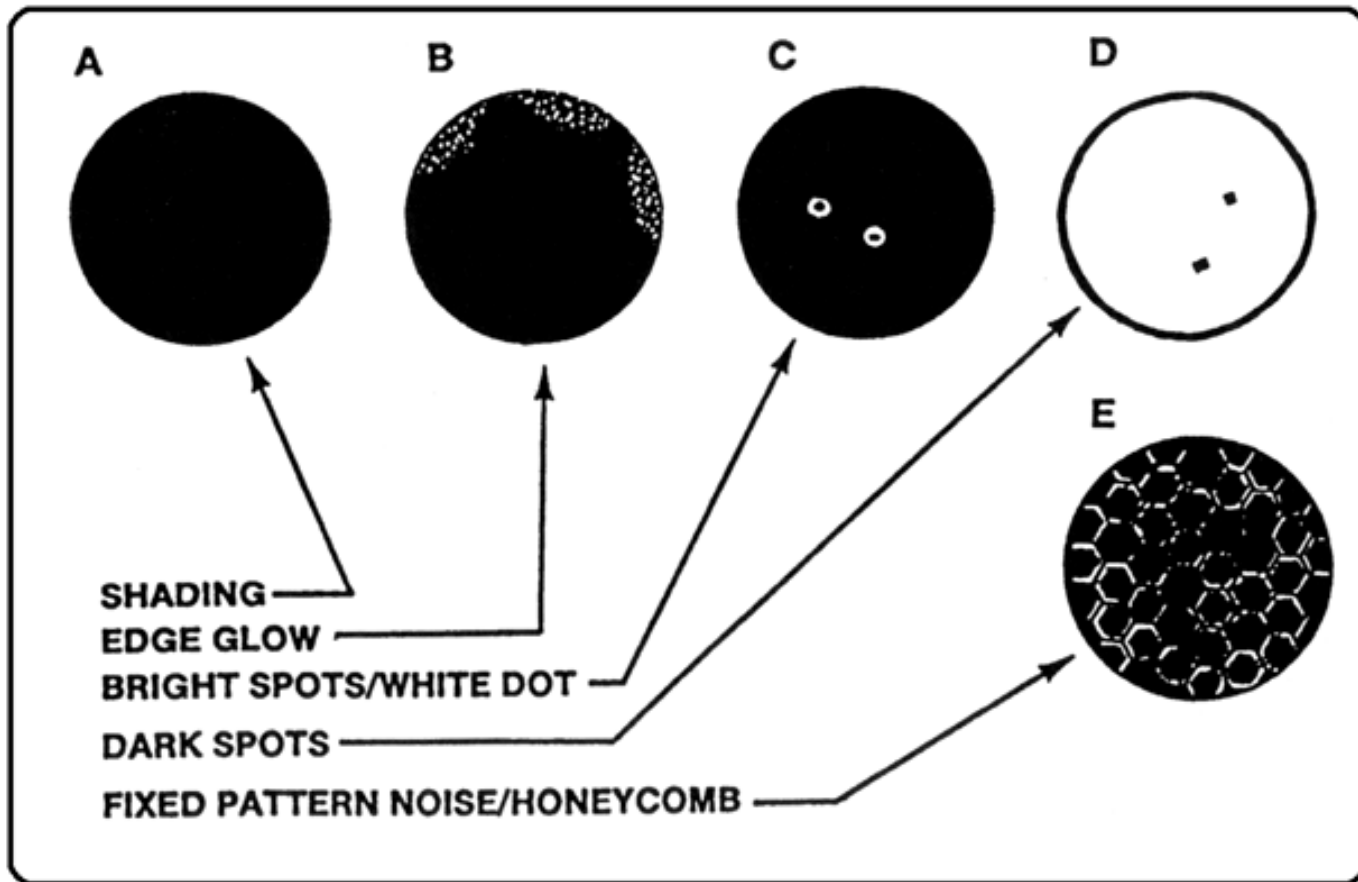
# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***General Characteristics***

- **Single-color Viewing**
- **Monochromatic Adaptation**
- **Dark Adaptation**
- **Spatial Disorientation**

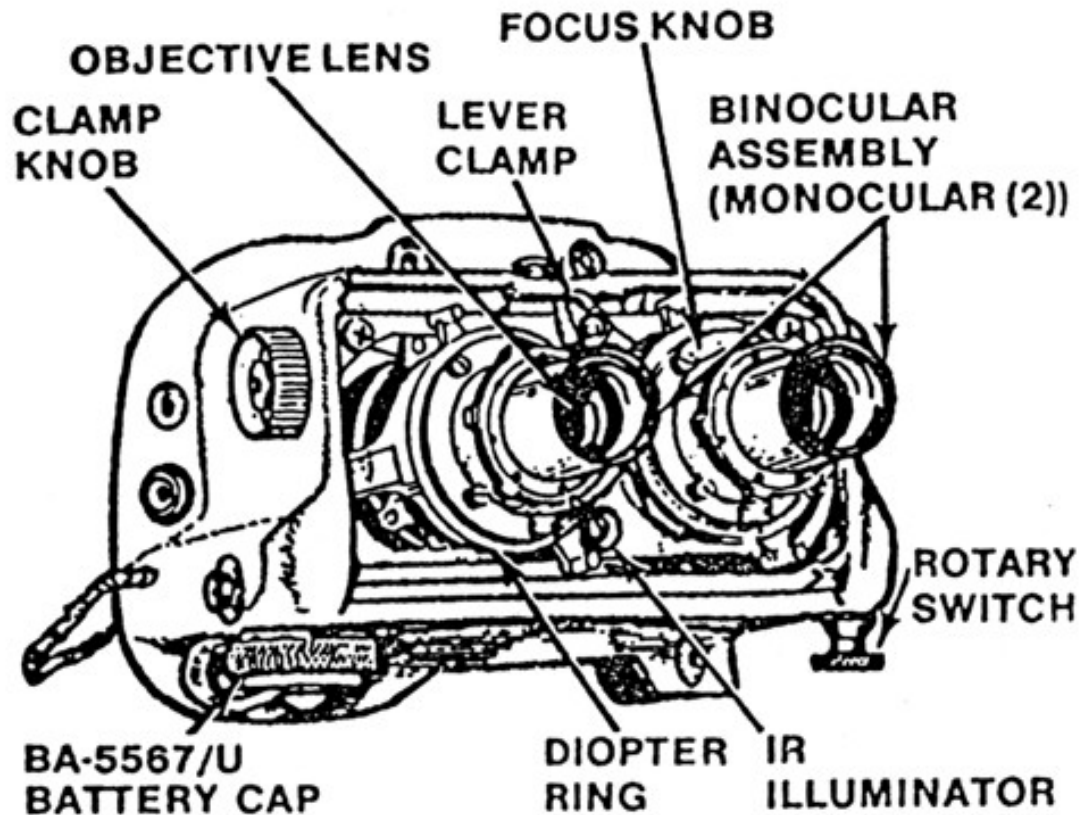
# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *Tube Defects*



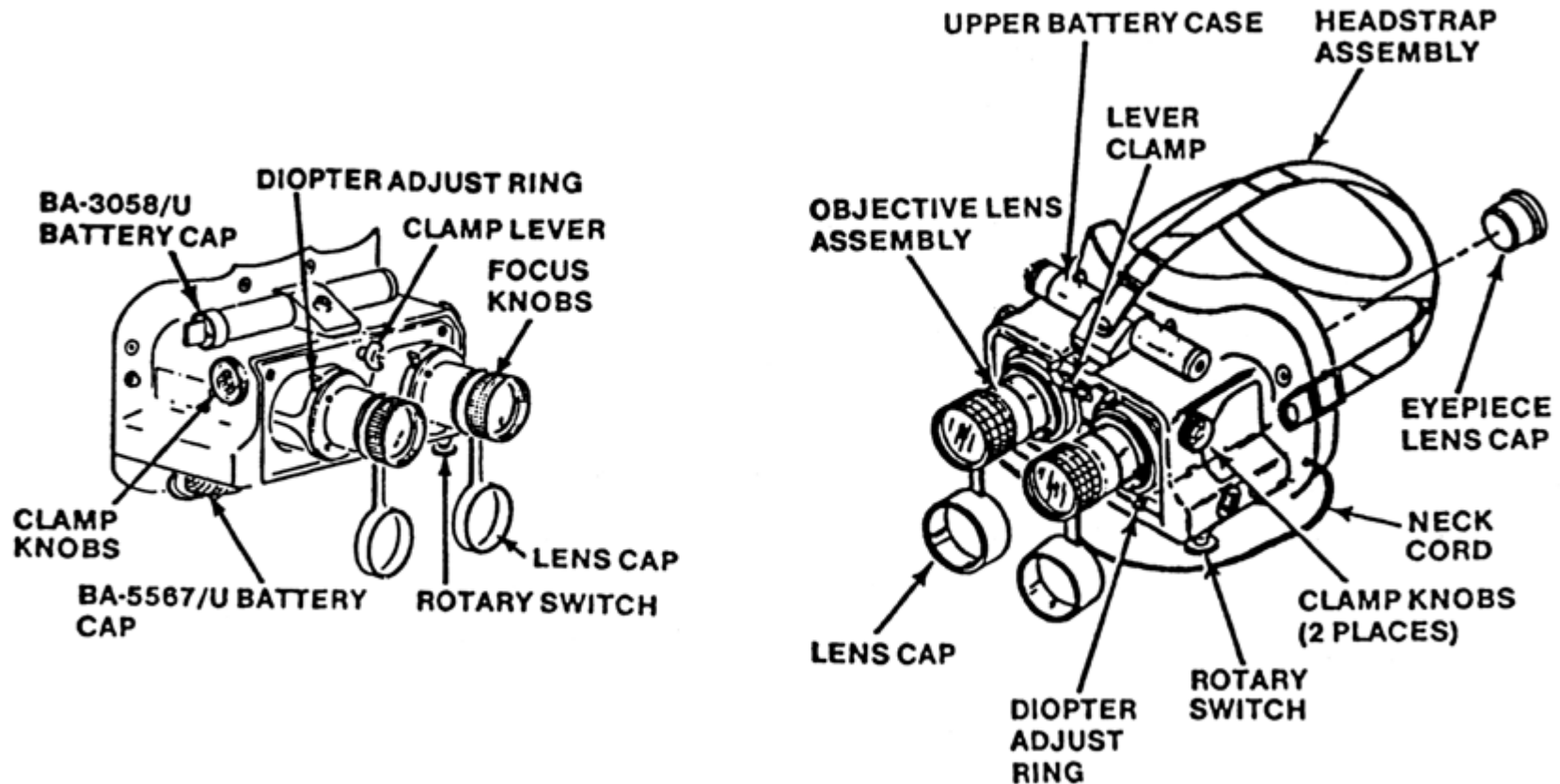
# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *AN/PVS-5 SERIES NVG*



# NIGHT VISION GOGGLE DRIVING OPERATIONS

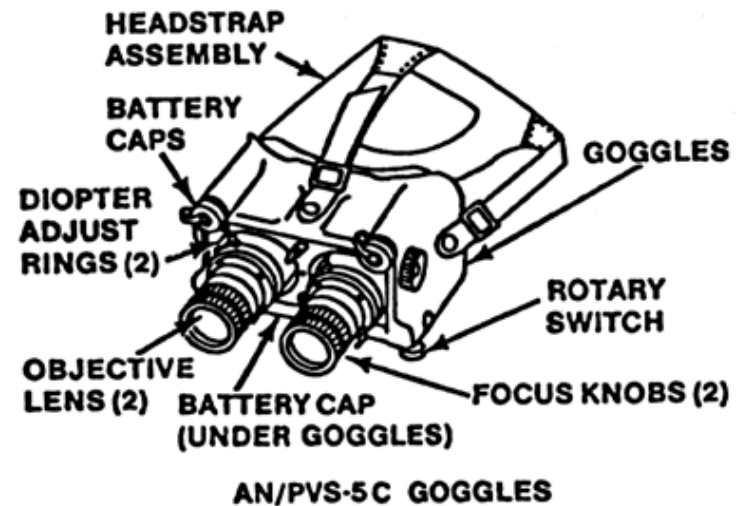
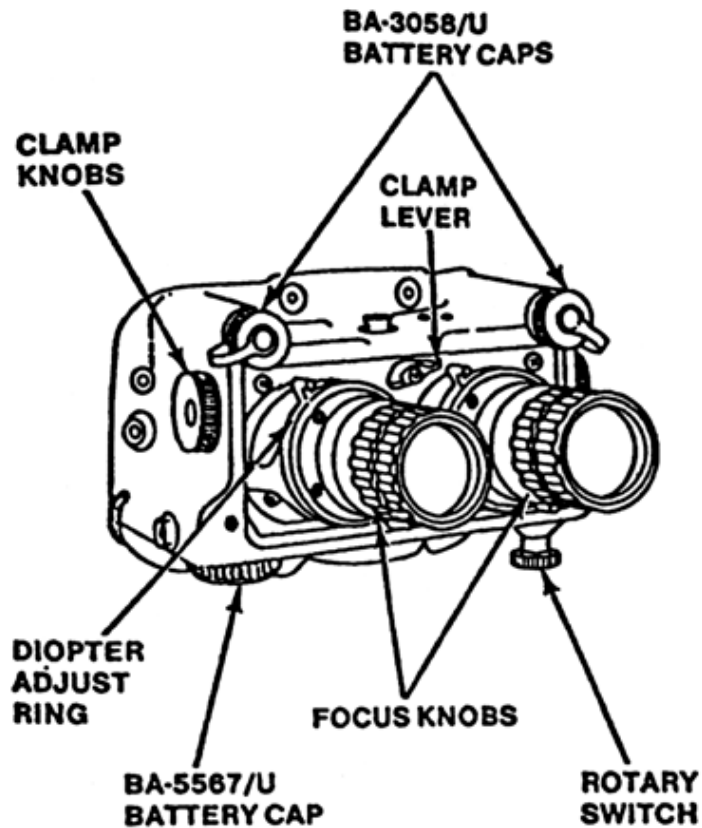
## *AN/PVS-5 SERIES NVG*





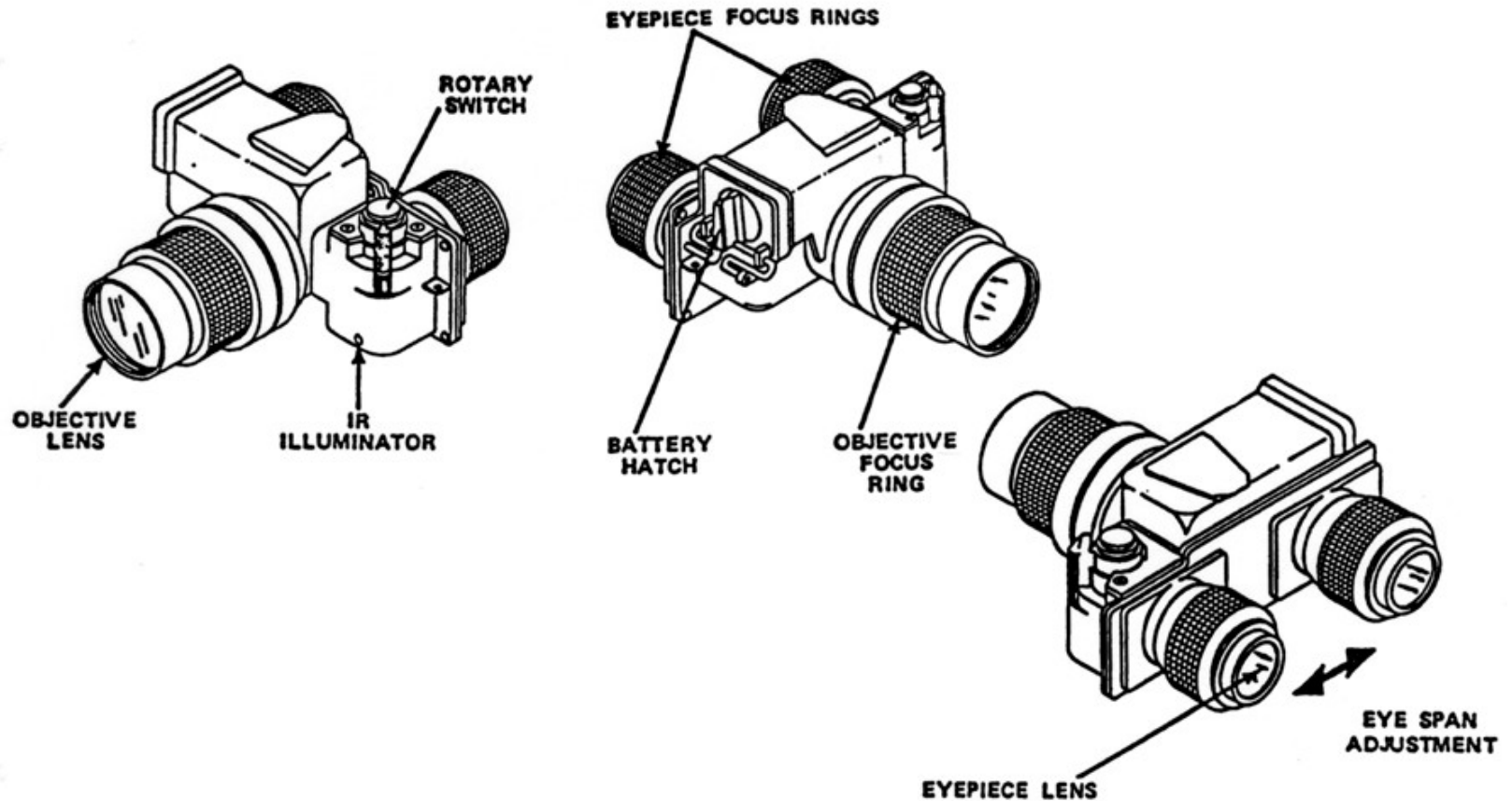
# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *AN/PVS-5 SERIES NVG*



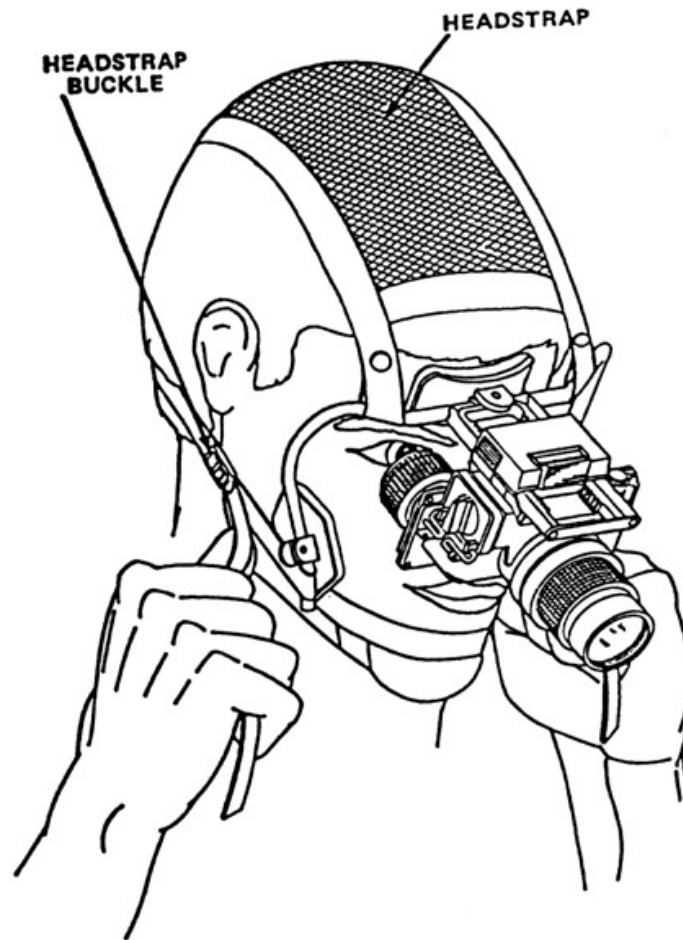
# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *AN/PVS-7A SERIES NVG*



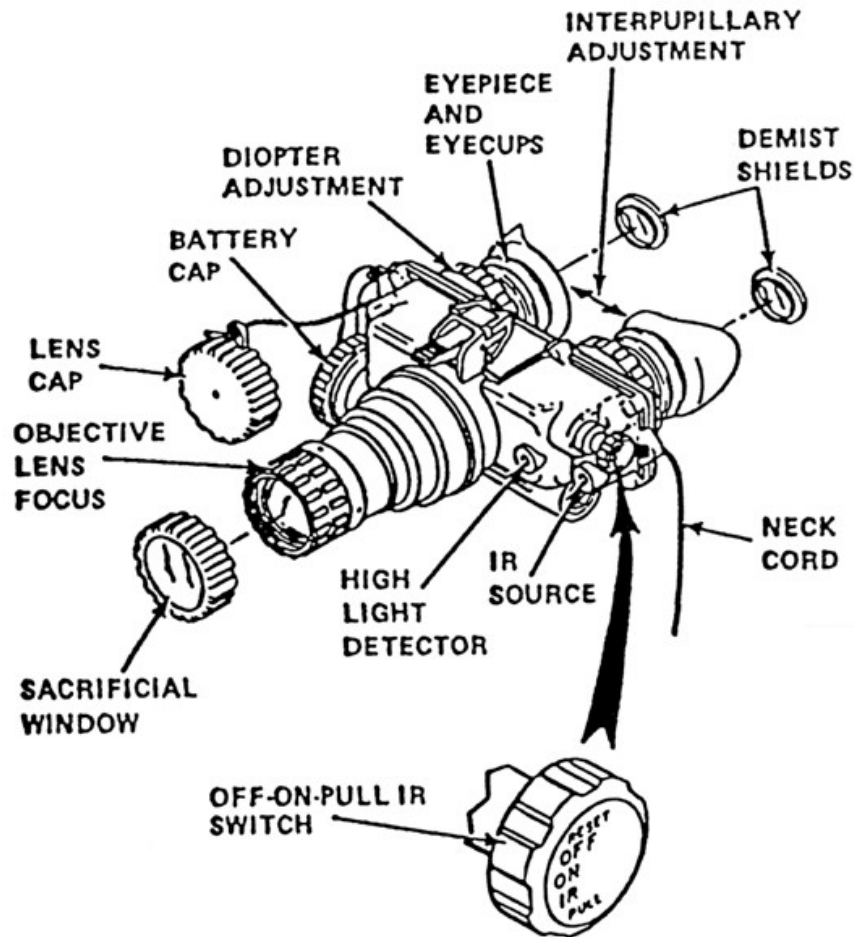
# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *AN/PVS-7A SERIES NVG*



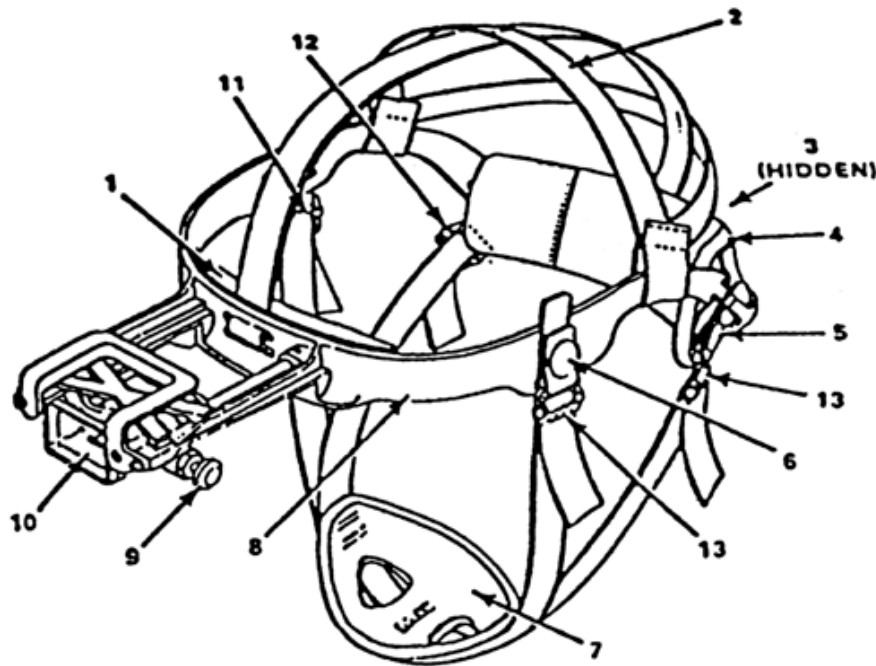
# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *AN/PVS-7B SERIES NVG*



# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *AN/PVS-7B SERIES NVG*



1. BROWPAD (THICK, MEDIUM OR THIN)
2. CROSS-STRAP ASSEMBLY
3. VERTICAL ADJUSTMENT
4. NECKPAD
5. LEFT REAR CHIN STRAP SNAP AND ADJUSTMENT
6. LEFT FRONT CHIN STRAP SNAP AND ADJUSTMENT
7. CHIN CUP ASSEMBLY
8. HEADBAND ASSEMBLY
9. SOCKET RELEASE BUTTON
10. HEADMOUNT SOCKET ASSEMBLY
11. RIGHT FRONT CHIN STRAP ADJUSTMENT
12. RIGHT REAR CHIN STRAP ADJUSTMENT
13. SLIDING BAR BUCKLES

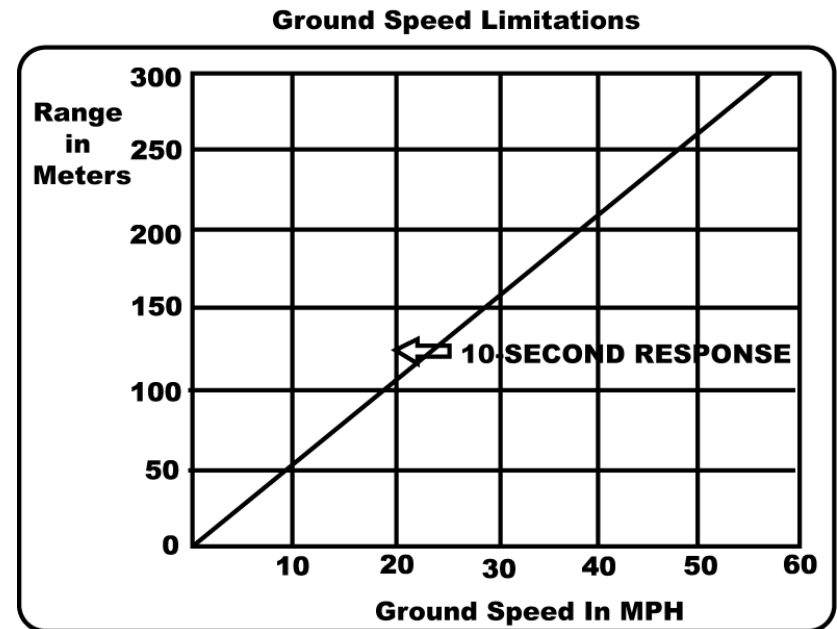
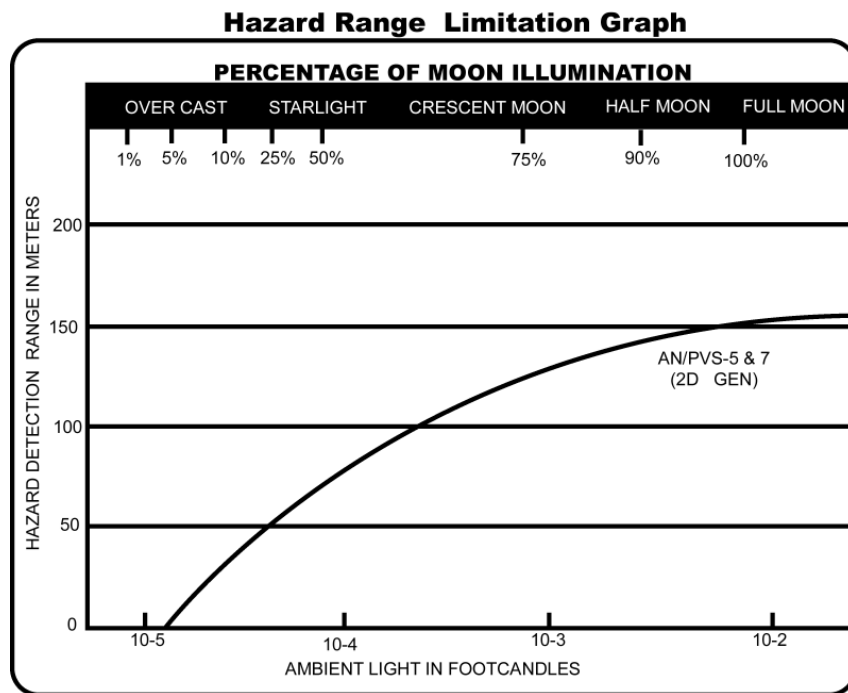
# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***Effects of Light***

- **Vehicle Lighting**
- **Instrument Lighting**
- **Lasers**
- **Artificial Lights**
- **Ambient Light Level**

# NIGHT VISION GOGGLE DRIVING OPERATIONS

## *Hazard Range Limitation Graph* *Ground Speed limitations*



# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***Driver Preparation***

- **Keep physically fit.**
- **Eat a well-balanced meal.**
- **Get adequate rest.**
- **Avoid self-medication.**
- **Avoid the use of tobacco and alcohol.**
- **Avoid bright lights after dark adaptation.**
- **Avoid bright sunlight during the day.**



# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***Driving with Goggles***

- **Developed through continuous practice.**
- **Awareness of NVG *CAPABILITIES* and *LIMITATIONS* is KEY**
- **EMERGENCY PROCEDURES:**
  - **Effects of oncoming headlights**
  - **Tube failure while driving**
  - **Vehicle breakdown procedures**
  - **Low battery light indicator**

▮ **Speed Discipline**

▮ **Communication**

▮ **Assistant Operator Responsibilities**

# **NIGHT VISION GOGGLE DRIVING OPERATIONS**

## ***Driving With The NVG***

### **Phase I:**

**Drive a vehicle on a designated route in *DAYLIGHT* conditions.**

### **Phase II:**

**Drive a vehicle on a designated route at night with vehicle headlights on (without NVGs).**

### **Phase III:**

- **Perform pre-operational NVG procedures.**
- **Perform vehicle PMCS (before OP) while wearing NVG.**
- **Drive a designated route at night with NVGs.**
- **Identify signs, route markings, ditches, etc.**
- **Perform post-operational NVG procedures.**
- **Perform vehicle PMCS (after OP) while wearing NVGs.**

***SAFETY FIRST !!!***